

**EXTINCTION OF SUBTERRANEAN FIRE BY STRAM-JET.**—Mr. Goldsworthy Gurney has extinguished a sort of volcano, which has raged without ceasing for 30 years, over an area of 26 acres of coal-seam underground! This new triumph of scientific principle has been achieved in Scotland, at the South Sauchie colliery, near Alloa. The seam of coal in course of destruction by the fire is 9 feet thick. It was set fire to, it is believed, by illicit distillers. A puddle-wall to arrest its ravages, was erected at great hazard, at an expense of 16,000*l.* about 19 years ago, after 5 years' labour of many hands, and at a sacrifice of 12 lives. The upholding of this wall, moreover, has ever since cost the Earl of Mansfield, who is the owner, 200*l.* a-year. Various reports, made by men of great authority in the coal trade, agreed in the belief of the utter impossibility of extinguishing this fire. The object has been accomplished, as many of our readers will be already well aware, by forcing into the burning waste a kind of choke-damp formed of nitrogen and carbonic acid, the product of a coke furnace, kept burning three weeks for the purpose, and pouring the choke-damp along an iron cylinder down the shaft and into the burning waste; the quantity of coke consumed being a sufficiently accurate measure of the quantity of air passed. To cool down all the material, so as to prevent it again igniting on the admission of atmospheric air, Mr. Gurney justly considered the most uncertain part of the whole experiment. In order to effect this, he used a fine contrivance, by which, by the power of the steam-jet, water was driven into the shaft along with the choke-damp in the form of the finest spray: it is described to have been like a continual Scotch mist. After a month's operation the temperature of the waste was reduced from about 250 to 98. Several bore-holes have been driven into the waste at different points, but no fire can be discovered; and this great volcano is extinct! Mr. Cayley, of Westminster, who took some part in the experiment, has published an account of the process.

**ELECTRO-TELEGRAPHIC PROGRESS.**—Mr. Edwin Clark, of the New-road, London, has patented a method of preventing the deposition of moisture on the earthenware insulators employed in suspending telegraph wires, by applying a band or inverted cup of metal, preserving a dry zone around them. Also for a method of applying a cross bar of iron or nickel to one pole of a permanent magnet, to cause the oscillation of the bar, and the consequent certain deflection of the needle.—The Submarine Telegraph Company for establishing an electric communication between Dover and Calais, have received the grant of a royal charter. The sum to be raised is 50,000*l.*, in shares of 1*l.* each, to be paid in full. When this link shall have been constructed, the telegraphic line will be unbroken from London to Vienna and Trieste.—An advertisement in the *Connecticut Courant* states that Houses' patent printing telegraph is in operation from Hartford to Boston, Providence, Springfield, Newhaven, and New York, and that it connects with all the southern, western, and Canada lines. The dispatches are printed by the instruments in Roman capital letters; thus avoiding the necessity of translating or transcribing, and the consequent liability to error. The prices for messages of ten words to Boston and New York are twenty cents, and for each additional word two cents; while, to any intermediate station the prices are fifteen cents for the first ten words, and one cent for each additional word.

**PIG-IRON MAKING IN SCOTLAND.**—A correspondent of the *Mining Journal* advises the blowing out of half the furnaces, and says that the produce of iron would still be very considerable; for by the improvements in the size and shape of the new furnaces, and the increase of blowing and heating power, upwards of 200 tons per week is no uncommon produce from one furnace. The scrip-system, he continues, is nearly, if not altogether, extinguished. Lucky it is so: it is a queer system, and, if carried out in every branch of manufacture, would lead to as queer results. Think of a man selling 1,000 bales of cotton,

to be grown a year or two hence—that is to say, the mineral is not dug yet, nor the cotton grown, but it is expected to be all right. The ease with which money was raised in this way enabled ironmasters to extend their works, and probably some more foolish things, which, if left undone, would have been better for the trade to-day. The state of the trade is such that matters cannot be minored; and what was attempted in 1841—viz., the blowing out of one-third of the then existing furnaces, must be repeated now by the blowing out of one-half. All the works now going on may be held as at their maximum.

**THE ROYAL ITALIAN OPERA HOUSE.**—"Fidelio" has been produced here with great completeness. The first scene, "The courtyard of the prison," is a good specimen of Romanesque.

**HALTING PLACES.**—The noblemen and gentlemen requested by the Council of the Society of Arts to act as a committee for establishing forthwith a certain number of model waiting-rooms, with water-closets and urinals in public thoroughfares, with the object of proving that these public conveniences, so much wanted, may be made self-supporting,—consider that the following, amongst other regulations, should be adopted in commencing this experiment:—1. That these conveniences be established on a moderate scale, in connection with shops in some public thoroughfares, and be called "Public Waiting-rooms." . . . 6. That the charges for use of lavatories (2*d.* and 3*d.*), water-closets and urinals (1*d.* and 2*d.*) include all attendance, and be publicly affixed in the shop. The committee recommend that the Council should undertake to lease several ground-floors in the Strand, Holborn, and Cheapside, and that no time should be lost in inviting respectable persons holding shops in public thoroughfares, who may be desirous of connecting the proposed public waiting-rooms with them, to inform the secretary, Mr. G. Grove, at the Society of Arts, Adelphi, of the accommodation which their premises offer for the purpose. The shops which appear to be most suitable for waiting-rooms for ladies are staymakers', bonnet-makers', milliners, &c. Those most suitable for gentlemen's waiting-rooms are hairdressers', tailors', hatters, taverns, &c.

**DRAINS LAID BY MACHINERY WITHOUT EXCAVATION.**—Some experiments, it is said of a satisfactory nature, have been made with a machine invented by Mr. Fowler, of the firm of Fowler and Fry, of Bristol, which, by the help of a capstan worked by horses, rips up the soil as by a knife, and inserts a series of tube-drains strung on a rope, and preceded by a conical nozzle, which bores the way at any required depth within a certain range, and introduces the drain-tubes without throwing out any earth, or leaving any mark but that produced by the knife or coulter, and, we presume, a little surface rise or ridge along the line or cut. The estimated expense of draining land in this manner, independent of the cost of the tiles, is about fourpence a chain, at which charge, we understand, contracts would be entered into: from 6 to 7,000 feet can be drained in one day, at an expense of about 30*s.*

**BRIDGE ACROSS THE ST. LAWRENCE.**—The project of the day in Quebec, is a bridge across the St. Lawrence. On a motion by Capt. Boxer, the city council have resolved to address the Government, asking them to inquire into the practicability of bridging the river at some point near Quebec. From bank to bank, at a point where the shores are unusually high, near Cape Rouge, the distance is about 2,200 feet. Low water mark, however, is over 500 feet from one bank, and more than 400 feet from the other, so that if two stone piers were raised at each of these points, the distance between them would be only about 1,200 feet, a space which has been spanned before in a single arch, both in the United States, at Wheeling, and across the Danube, in Austria. It is estimated that two piers of solid masonry, 50 feet square, and of the necessary height, 130 or 140 feet, would cost about 50,000*l.* If the point opposite Deschambault were chosen, though the width of the river there is somewhat greater, there is

an island in the middle on which a pier might be built. The expense of the rest of the work, judging from the expense of the wire bridges of Niagara, would probably be about 70,000*l.*; so that the whole cost might probably amount to 120,000*l.*

**DRAIN PIPES, GLAZED AND UNGLAZED.**—"Towns and villages," writes the *Wills and Gloucester Herald*, "are to be perforated by tubular drains, and yet no one asks or cares for the cheapest and most efficient material. The glazing of clay pipes adds fifty per cent. to their cost, and yet it is quite practicable to make pipes that shall be longer, requiring fewer joints, of perfect current, and of infinitely greater strength—that is to say, capable of bearing double the hydraulic pressure. Well-burned common pottery is the oldest of all manufactured substances. In the Etruscan rooms of the British Museum—the Society of Arts—and, indeed, every collection of ancient works—this material is seen, after the lapse of ages, in an imperishable state. Mr. Kennet Loftus, now employed in the survey of Turkey and Persia, says, 'At the ruins of Sinkara I found a well-baked cylindrical pipe of reddish clay, a yard in length and five inches bore, as perfect as when deposited centuries ago.' Throughout the estate of Lord Grosvenor at Piccadilly, Mr. Cubitt has used the unglazed drain pipes; and, indeed, their use seems to be only obstructed by those who have but superficially considered the question. Why then, we ask, do the ratepayers of this country incur increased expense for that which is shown to be unnecessary? Glazing adds nothing to the durability of pipes: it is frequently deleterious, from its composition, to pure water; and for sewage purposes is destroyed by the acid of the fluids passing over it. Strength, impermeability, and smoothness of current are necessary to perfect drainage, and this may be attained by a greater economy over the present system."

**DOCTORS' SHOPS FOR WORKMEN.**—Mr. C. R. Walsh, M.R.C.S., in a recent lecture on "Co-operation in Sanitary Matters," before the society for promoting "Working Men's Associations," said, "To supply the inhabitants of any city, town, and village with plenty of wholesome air, plenty of wholesome water, (and not too much), and wholesome food must always be the result of co-operation in some shape, whether at the hands of the state at large, or of any municipal body, or even of a public company. But no such interference was required to provide the public, or as large a portion of the public as chose to avail themselves of it, with plenty of good medical advice, and genuine drugs. The latter might simply be added, as an article of trade, to the stock of any co-operative store. It was clearly absurd that articles, costing together 1*d.* or 1½*d.*, should be charged 18*d.*, simply because they were bought as medicine, bought at a "doctor's shop;" just as if, finding a potent too thinly clad, and ordering him to buy an overcoat, the latter should be charged 10*l.* or 12*l.* for it, because it was for his health. As respects medical advice, they could derive, he thought, valuable hints from what are called self-supporting dispensaries. A number of working men club together by small subscriptions to set up a "doctor's shop" of their own, overlooked by a practitioner at a fixed salary. It becomes their interest to consume as little of their own medicine as possible, but that little as good as may be: it becomes his interest to have as little illness to attend to as he can. Why should not this practice be extended from class to class, till the services of the most eminent practitioners should be secured? Clerks might have a society at one rate of subscription; those somewhat better off in the world than they, at a higher one.

**SIGN AND NOTICE BOARDS.**—None but those who have witnessed the fixing of these boards against the fronts of houses can credit the insecure manner in which this fixing is accomplished. A few wall hooks, which, if they ever had any hold of the brickwork, lose it often by rust, constitute the sole points of support. The Act of Parliament limits the height of the top of these boards to 18 feet above pavement line, but this is often evaded.—R. L. S.